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them to existing conditions. The reform of a man must begin with his grandfather; until our schools and colleges raise up a new generation of teachers accustomed to more vital relationships with their social and natural environments, we must strive toward, but cannot hope to realize fully the educational ideals set forth in this stimulating report of an experiment whose theoretical basis entitles it to the enthusiastic endorsement of sociologists.

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Forced Movements, Tropisms, and Animal Conduct. By JACQUES LOEB. Philadelphia: J. B. Lippincott Co., 1918. Pp. 209. 1918. \$2.50.

Loeb develops in his work his well-known theory of tropisms, discussing seven different types of forced movements, but giving most space to heliotropisms. Examples are drawn almost wholly from lower animal forms. He makes instincts and tropisms identical. Tropisms are the result of the directive influence of the hormones and the associated memory images. The implication, therefore, would be that instincts may be acquired as well as inherited. There is a strong insistence everywhere in the book upon the biophysical and the biochemical viewpoints. The illusion of free will is due to the multiplicity of associative memory images in man which constantly modify or reconstitute his tropistic equipment and thus make long-time prediction of activities impossible. His explanation of the method and function of associative memory makes it easy to indicate the acquired elements in activities formerly held by the biologists and many sociologists to be matters of inheritance. Thus the so-called reproductive instinct in action represents a combination of the effects of hormones (inherited) and associative memory (acquired) working out tropistically. He also shows that opposition to incest and sex perversion are the results of associative memory images. Consequently, they must be acquired rather than inherited dispositions, contrary to the older popular views. Even the complex "instinct" by which the wasp stings the caterpillar and returns with it to a hole previously prepared—one of the triumphant examples of the biological interpretationists or instinctivists—is based upon associative memory and therefore cannot be an inherited mechanism.

These interpretations are of very great importance to the social psychologist of the future. Two consequences of Loeb's reasoning

deserve passing comment. Does he wish us to understand that instincts as well as tropisms are acquired, as inevitably they must be if they may be constituted in part or wholly from associative memory? This view of the acquired nature of instinct has been dispensed with among scientists and in the better literature of the social and mental sciences. Does he desire to revive the old popular definition of instinct, or would he consider it preferable to find some other terminology to cover activity complexes built upon associative memory? Secondly, we now have from a distinguished biologist an explanation of the automatic but apparently purposive movements of the lower organisms which is not based on inheritance. The old view of the biological or inheritance determinists was that we must choose between inheritance (instinct) and rational thought as the explanation of these apparently purposive acts of the lower organisms, and obviously it could not be the latter. Loeb gives us a third possibility, which is unfavorable to the inheritance assumption.

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Naval Officers, Their Heredity and Development. By CHARLES BENEDICT DAVENPORT. Assisted by MARY THERESA SCUDDER. Washington: Carnegie Institution of Washington, 1919. Pp. v+236.

Davenport's study employs the methods characteristic of its author. By means of brief studies of the family histories of sixty-eight distinguished naval officers he seeks to discover what traits in the young are most likely to result in successful careers in the navy. These traits are in the summary surprisingly (?) like those required for success in numerous other professions and callings. One might sum up the findings by saying, "Choose active, resourceful, intelligent, adventurous boys for future naval officers." With this wise, if commonplace, conclusion no one would disagree. The inheritance of these traits is assumed, as also is the love of the sea, which is treated as a definite instinct. One who has read Loeb's volume will probably find as much causal connection in the child's early environment, especially that of ideas, as in his inheritance. This probability is also borne out by the fact that the family charts by no means display regular Mendelian ratios. That naval officers would tend to recur in families is probably more credible from the environmentalist's point of view than from that of the eugenicist. It is to be regretted that the compilers of the biographies did not make a